

REMARKS/ARGUMENTS

Introduction:

Claims 60, 63, and 70 are amended, and claims 1-46, 50-52, 56-59, 64-66, 68, and 69 are or were previously canceled. In addition, claim 71 is new. Claims 47-49, 53-55, 60-63, 67, 70, and 71 are now pending in the application. Applicants respectfully request reexamination and reconsideration of the application.

Rejection Under 35 USC 112, Second Paragraph:

Claims 47-49, 52-55, and 60-70 were rejected under 35 USC 112, second paragraph, as being indefinite because (1) the structure of the claimed die is allegedly unclear, and (2) the term "sharpened" is allegedly unclear. Applicants respectfully traverse this rejection.

As discussed in Applicants' Amendment dated March 21, 2007, there is no statute, PTO rule, MPEP section, or court case that requires that examples of structures of a product claimed in product-by-process format be recited in a claim or disclosed in the specification. Perhaps because no such requirement exists, the courts have reduced the PTO's initial burden in establishing a *prima facie* case of obviousness with respect to a claim in product-by-process format. (See MPEP 2113, subsection entitled "Once A Product Appearing To Be Substantially Identical Is Found And A 35 U.S.C. 102/103 Rejection Made, The Burden Shifts To The Applicant To Show An Unobvious Difference.") That is, the MPEP states that "[t]he lack of physical description in a product-by-process claim makes determination of the patentability of the claim more difficult." (MPEP 2113, subsection entitled "The Use Of 35 U.S.C. 102/103 Rejections For Product-By-Process Claims Has Been Approved By The Courts.") To compensate, the MPEP states that, among other things, "[t]he Patent Office bears a lesser burden of proof in making out a case of *prima facie* obviousness for product-by-process claims . . . than when a product is claimed in the conventional fashion." (MPEP § 2113, subsection entitled "Once A Product Appearing To Be Substantially Identical Is Found And A 35 U.S.C. 102/103 Rejection Made, The Burden Shifts To The Applicant To Show An Unobvious Difference.") There is thus no requirement that examples of structures of a product claimed in product-by-process format be recited in a claim or disclosed in the specification. Applicants therefore assert that the PTO's first grounds for rejecting the claims under 35 USC 112, second paragraph—that the structure of the claimed die is allegedly not clear—does not support the rejection.

Turning next to the term "sharpened," Applicants note that the term "sharpened" has been removed from the claims to broaden the claims and not for reasons unrelated to the rejection or patentability. Although the rejection on the grounds that the term "sharpened" is allegedly not clear is now moot, Applicants nevertheless assert that the term "sharpened" has a sufficiently clear meaning to meet the requirements of 35 USC 112, second paragraph, which requires, with respect to the definiteness requirement of the second paragraph of 35 USC 112, nothing more than that the scope of the claim be set forth "with *a reasonable degree* of clarity and particularity." (MPEP 2173.02 (emphasis added).)

For at least the foregoing reasons, Applicants respectfully assert that all pending claims meet the requirements of 35 USC 112, second paragraph. Therefore, the rejection should be withdrawn.

Rejection In View Of Prior Art:

Claims 47-49, 52-55, and 60-70 were rejected under 35 USC 102(b) as anticipated by US Patent No. 5,177,438 to Littlebury et al. ("Littlebury"). In addition, claims 47-49, 52-55, and 60-67 were rejected under 35 USC 102(e) as anticipated by US Patent No. 6,340,894 to Farnworth et al. ("Farnworth"), and claims 47-49, 52-55, and 60-67 were also rejected under 35 USC 102(b) as anticipated by US Patent No. 5,521,518 to Higgins ("Higgins"). Applicants respectfully traverse these rejections.

As discussed in detail in Applicants' Amendment dated March 21, 2007, because of the shape and configuration of Littlebury's contacts 18, those contacts necessarily "break"—i.e., smash (see the attached Appendix)—through oxide on the bonding pad 27 of Littlebury's die 26 and in the process leave much larger marks on the die terminals than are left on the terminals of the semiconductor die by the methods claimed in the present application, which leave smaller marks in the form of thin slices on die terminals. As set forth in the Amendment dated March 21, 2007, Applicants assert that the foregoing difference between the semiconductor die of the claims of the present application and Littlebury's die 26 is a patentable difference. For at least the foregoing reasons, independent claim 60 is patentable over Littlebury.

To the extent the PTO takes the position that Littlebury's cap 17 can be considered a blade with a cutting edge that slices because cap 17 is smaller than layer 16, Applicants traverse

the PTO's position because that position does not take into full consideration the meaning of terms used in the claims of the instant application and the express descriptions in Littlebury.

For example, independent claim 60 recites "the *cutting edge* of each blade *slicing* through a surface of one of the terminals and thereby creating a slice mark on the one of the terminals." The term "edge" refers to a "thin, sharp side of [a] blade of a cutting instrument" (see the attached Appendix), and "cut" means "to penetrate with or as if with a sharp-edged instrument" (see the attached Appendix). In addition, the term "slice" means "to cut through . . . with or as if with a knife." Claim 60 thus clearly and unambiguously recites blades with sufficiently thin cutting edges to slice into terminals of a die.

In contrast, Littlebury expressly depicts cap 17 as having a flat—i.e., blunt—contacting surface. (See Littlebury Figures 1 and 2.) Not surprisingly, Littlebury expressly describes the action of cap 17 as "breaking" through oxide on bond pad 27 of die 26. (Littlebury col. 1, line 62 and col. 4, line 31.) As set forth in the Amendment dated March 21, 2007, the term "breaking" means "to smash, split, or divide into parts violently" or "reduce to pieces or fragments." (See the attached Appendix.)

No person of skill in the field would read Littlebury's flat, blunt cap 17 as a "cutting edge," nor would a person of skill in the field interpret the action of cap 17 "breaking" through oxide as "slicing." Indeed, all of the objective evidence—dictionary definitions and the express teachings of Littlebury—point to an opposite conclusion: Littlebury's flat cap 17 is not a "cutting edge," nor does Littlebury's blunt cap 17 "slic[e]" into bond pad 27. The small thin slice marks made by the "cutting edge[s]" as the blades in claim 60 "slic[e]" into the terminals of the die of claim 60 are patentably different than the large, blunt scrub marks left on Littlebury's bond pads 27 as blunt caps 17 "break" through oxide on the bond pads 27.

For at least the foregoing reasons, claim 60 is patentable over Littlebury.

Applicants note that part of the feature recited in former claim 68 is now recited in independent claim 60. Namely, claim 60 now recites from former claim 68 that "each blade compris[es] a cutting edge along a length of the blade." Because the PTO did not reject former claim 68 in view of Farnworth or Higgins and thus presumably found claim 68 to be patentable over Farnworth and Higgins, Applicants assume that the PTO will likewise find claim 60 as now amended to be patentable over Farnworth and Higgins. Applicants note that there is no disclosure in Farnworth that penetrating projections 26 (which the PTO equated with the blades

recited in the claims of the instant application) deflect across bond pads 27. (See Farnworth Figures 2 and 4A.) Rather, it appears as though penetrating projections 26 are merely pressed directly into bond pads 27 without any wiping motion and therefore do not slice into Farnworth's die bond pads 27. (See Farnworth col. 7, lines 33-42.) Applicants also note that Higgins depicts element 312 (which the PTO equated with the blades of the claims of the instant application) as rounded in the drawings (see Higgins Figure 4) and describes element 312 as a "bump" (Higgins col. 8, lines 40.) Higgins' element 312 thus clearly is not a "blade comprising a cutting edge along a length of the blade."

For at least the foregoing reasons, independent claim 60 is also patentable over Farnworth and Higgins.

Claims 47-49, 53-55, 61-63, 67, 70, and 71 depend from independent claim 60 and, at least because of that dependency are also patentable over Littlebury, Farnworth, and Higgins. Moreover, claims 47-49, 53-55, 61-63, 67, 70, and 71 recite additional features not disclosed in or rendered obvious by Littlebury, Farnworth, or Higgins. For example, claims 70 and 71 recite that the blades comprise tapered side walls. Each of the slice marks in the surface of the terminals of the dies of claims 70 and 71 created by the wiping of the blades across the terminals therefore taper from an opening at the surface of the terminal to the bottom of the slice mark. Indeed, the slice mark on the terminals of the dies of claim 71 are necessarily larger at the opening at the surface of the terminal than at the bottom of the slice mark, and the slice mark tapers from the opening to the bottom of the slice mark. Such slice marks further distinguish the dies of claims 70 and 71 from the dies of Littlebury, Farnworth, and Higgins.

Conclusion:

In view of the foregoing, Applicants submit that all of the claims are allowable and the application is in condition for allowance. If at any time the Examiner believes that a discussion with Applicants' attorney would be helpful, the Examiner is invited to contact the undersigned at (801) 426-2106.

Respectfully submitted,

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